

Stakeholders Meeting regarding ETV Sludge Gasification Study (Phase I) Meeting Notes

Date & Time: May 28, 2010, 1:30 p.m. ET

Attendees: Mike Parker [State of Maine Department of Environmental Protection], Richard Bain [US DOE, NREL], Jason Turgeon [EPA Region 1], Lee Beck [U.S. EPA], Chun-Wai Lee [U.S. EPA], Judy Jarnefeld [NYSERDA], Park Chan [CE-CERT/ University of California, Riverside], Tim Hansen [Southern Research Institute], Christina Karni [Southern Research Institute], Richard Adamson [Southern Research Institute]

Item Number	Description	Discussion	Action
1	Introduction	<p>Jason Turgeon provided context for the initiation of the project, combining interests of pulp and paper with wastewater gasification applications at the Maine DEP.</p> <p>Mike Parker informed the group that ME DEP has sludge characteristics data.</p> <p>Rich Bain informed the group that it is necessary to know detailed chemical composition of the sludge, (via Ultimate & Proximate analysis, moisture/solid content, as well as detailed ash composition.</p>	Mike Parker has committed to supplying sludge characteristics data.
2	Overview of Project a. Project Objectives b. Sludge Gasification Parameters	<p>Tim Hansen provided a detailed overview regarding the project, and what parameters the analysis will cover. He requested that the stakeholders provide any additional parameters that are necessary to the analysis. Both Rich Bain and Park Chan agreed that the physical footprint of the plant is an important parameter.</p> <p>Park Chan suggested limiting the size to what is deemed reasonable for a single wastewater treatment facility. Park Chan also suggested that when dealing with a large size, regional gasification facility, the analysis should take into account transportation costs.</p> <p>When discussing process boundaries, Rich Bain suggested that if the analysis stops at syngas production then we are missing an important part of the process. Downstream processing is often exothermic, yielding heat as a by-product that can be used for drying of</p>	<p>It was requested that Stakeholders provide any other parameters that should be analyzed, and whether or not the parameters already being collected are necessary.</p> <p>It was agreed that the analysis needed to include criteria pollutants and primary contaminants.</p>

	the feedstock.	
	When discussing emissions, Rich Bain commented that emissions can be whatever you want them to be if you are willing to spend the money to get there.	
3	<p>Analysis to Date</p> <p>a. Contacts</p> <p>b. Vendors</p> <p>c. Citations</p> <p>Christina Karni provided a brief overview of the information that was sent along with the agenda. A request was made to the group to provide any other contacts, vendors, and citations to help the analysis.</p> <p>For the most part, gasifiers need feed to be below 50%. Park Chan raised the point that his technology can handle higher moisture contents and due to this being an emerging technology, it may receive less attention.</p> <p>Park Chan suggested that Rentech has experience with gasification of biosolids, perhaps provided by Enertech (pre-processed biosolids).</p> <p>Rich Bain suggested that “Carbona” or “Carbona/Tampela” has historically worked with paper sludge gasification, though they no longer work in this area.</p> <p>Rich Bain also suggested that Finnish gasifiers may have experience on paper sludge, and while he is in Finland this week he will inquire about contacts there regarding European experience and/or data sources. Also, Skjelde (sp?) of the Netherlands operated a large sewage sludge gasifier pilot.</p>	<p>It was requested that the Stakeholders provide any other contacts, vendors, or citations that they may have to aid in the analysis.</p> <p>Christina Karni will research Rentech, Enertech, Carbona (Carbona/Tampela), and more international companies.</p> <p>Along with committing to provide contacts for Finnish and other European gasifiers, Rich Bain informed the group that he has contacts for most of the vendors listed and will provide these contacts upon his return from Finland, ~June 8.</p>
4	<p>Open Issues</p> <p>Christina Karni briefly talked about the issues that had not already been discussed.</p> <p>Regarding the discussion of large-scale commercial sludge gasification, Rich Bain recalled that NETL was to perform some test gasification runs, but EH&F would not allow it on site due to the high Ba concentrations.</p> <p>Regarding the issue of the inclusion of pyrolysis technology, it was not believed to increase the</p>	<p>Tim Hansen confirmed that a WEF rep needed to be contacted to obtain biosolid characteristics.</p>

work load by much, as the number of 'qualified developers' is limited and few are targeting this particular market. Rich Bain informed the group that a sludge feedstock undergoing pyrolysis does not produce good quality pyrolysis oil, nor did he recall anyone who has performed pyrolysis of sludge. He asserted that pyrolysis may be more suited to pre-processing, (i.e. production of crude pyrolysis oil to be fed into a gasifier; may have been performed in Europe).

Judy Jarnefeld inquired into the use of torrefaction as a means of handling sludge, and Rich Bain said that he did not know of anyone who has used this technology for a sludge feedstock, (though this does not mean it has not been done), being that torrefaction is mostly used for wood, and some for straw.